

Gender and Depression: Explaining the Different Rates of Depression Between Men and Women

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The purpose of this essay is to review the major explanations that have been given to account for the higher rates of depression in women than in men. Despite opposing arguments, gender differences in depression rates appear to be very real, emerging in adolescence and existing across cultures. Theories accounting for this difference can be divided into three major categories: biological, environmental, and psychological explanations. It will be argued that environmental and psychological explanations are more convincing than biological explanations. However, no one theory fully accounts for the extent and prevalence of the higher rates of depression in women than in men. Rather, a woman's biology, environment, and psychology all seem to play roles in increasing her risks of developing depression. Finally, it is how these three factors interact with each other that appear to be most important in accounting for the greater prevalence of depression in women.

INTRODUCTION

Why are so many more women than men depressed? Meta-analysis of studies conducted in various countries has shown that women are roughly twice as likely as men to experience depression (Nolen-Hoeksema, 1990). The reason for this sex difference is not entirely clear, although most researchers today believe that it is a combination of several factors, including: the effects of estrogen on the stress hormone, cortisol (Leibenluft, 2001), the prevalence of the victimization of women (Roesler & McKenzie, 1994), and the tendency of women to ruminate over their problems (Nolen-Hoeksema, 1990). These explanations point to differences between men and women biologically, environmentally, and psychologically. While all of these factors seem to play roles in accounting for the higher rates of depression in women, they do so in various ways, and arguably, to various degrees. Before we begin to evaluate these different explanations, however, we must first look at the evidence for sex discrepancies in rates of depression between men and women, and how these differences are manifested cross-culturally and throughout the life span. It is also necessary to consider the possibility that men and women actually share similar rates of depression, but

express depression in gender specific ways. According to this theory, men mask their depression through externalizing acts, such as excessive drinking. If this is the case, then the difference in rates of depression between men and women is actually illusionary - men and women are equally likely to be depressed, and there is no need to account for sex differences in rates of depression.

WOMEN AND DEPRESSION

There have been numerous studies conducted within cultures and cross-culturally in order to identify depressive symptoms in both men and women. In 1994, Blazer et al. conducted the National Comorbidity Study assessing the rates of depression in each of the fifty states of the U.S. Of the randomised sample of people aged 15 to 54, 4.9% met the criteria for major depressive disorder. Of the women sampled, 6% were found to be clinically depressed compared to 3.8% of the men sampled. Gender differences in lifetime prevalence of depression were also found to be significant, with 21.3% of women and 12.7% of men having had experienced depression in their lifetimes (Blazer et al., 1994). The methods used in this study provide strong

evidence that women in America are roughly twice as likely to be diagnosed with major depression than men. Researchers such as Phillips & Segal (1969) have argued that women are more likely to be diagnosed with depression because they are more likely to seek professional help for their depressive symptoms. By taking a random sampling of Americans from each state, this bias is avoided. However, studies focusing on the sex differences of people seeking treatment for their depressive symptoms are also useful, because data are relatively easy to obtain.

In an analysis of studies of treated cases of depression, Nolen-Hoeksema (1990) compared the rates of depression for men and women from numerous countries and cities outside of the United States, including the United Kingdom, Egypt, Hong Kong, India, and Kenya. While each country and city varied in its rates of overall depression, women were consistently found to be approximately twice as likely to be treated for depression than were men. The only places where sex differences in treatment rates of depression were not reported were in Nigeria and in the rural parts of Iran. Nolen-Hoeksema (1990) also reviewed studies that identified subgroups of the American population that did not show gender differences in depression. These subgroups included children up until the age of puberty, college students, and the Old Order Amish. These exceptions, though few, are noteworthy and bring up several important questions. For example, what is particular to these populations that results in equal rates of depression between men and women? In the case of children, are the rates of depression similar for sociological or biological reasons? Do certain environments protect women from depression, or do they simply attract depression-resistant females? It is unclear whether the college environment promotes equal rates of depression in men and women, or if women who attend college are protected from depression in other ways. According to a study conducted by Lloyd and Miller (1997), medical students at the University of Texas share similar rates of depression, while medical students at the University of Edinburgh show higher rates of depression in females. Perhaps, then, the similar rates of depression that have been found in college students are limited to certain kinds of colleges and to certain countries. By identifying subgroups of populations that share similar rates of depression between men and women, we can learn more about what is particular to these groups in terms of demographics, environments, or psychologies that results in shared rates of depression. This information, in turn, may help us

understand why there are sex differences in the greater population.

For now, it is important to note that despite these exceptions, women are overwhelmingly more likely to be depressed than men, at least in terms of meeting the diagnostic criteria for depression found in the DSM-IV. Whether these criteria are adequate measurements of depression is debatable, however, this leads some to question the idea of true sex differences in rates of depression. It has been argued that men are equally as likely as women to be depressed, but they are not as likely to express depression in terms of sadness, fatigue, loss of interest in activities, feelings of worthlessness, etc., since it is considered "unmanly" to do so (Real, 1997).

MEN AND DEPRESSION

According to Dr. Terrence Real, author of the best-selling novel, *I Don't Want to Talk About It: Overcoming the Secret Legacy of Male Depression*, men who experience depression carry two stigmas, one associated with mental illness and the other, "feminine" emotionality (Real, 1997). Among college students, Hammen and Peters (1978) found that when depressed female students reached out to their roommates and were met with concerned and nurturing reactions. Depressed male students who did the same, however, were met with social isolation and in some cases, outright hostility. Fourteen years later, Joiner et al. (1992) replicated the study and found similar results. Since men are taught that it is not acceptable to express their feelings of depression to others, they may seek comfort from other sources, such as alcohol. Indeed, one argument in support of the idea that the different rates of depression between men and women are illusory is that alcoholism is twice as common in men than in women. If we think of alcoholism as the male version of depression, then we would not need to account for any differences in rates of depression between genders. There is, however, limited evidence in support of this theory.

For example, researchers have identified low serotonin levels in the brains of alcoholic men and depressed women, indicating similar biological components between the two disorders (Leibenluft, 2001). However, low serotonin levels have also been found in the brains of men and women with anxiety disorders (Leibenluft, 2001). It is unclear whether this is a result of comorbid depression in anxious patients, as well as

in alcoholic patients, since both anxiety disorders and alcoholism are highly correlated with depression, as well as with each other. However, even if low serotonin levels are found in alcoholic and anxious patients without depression, we cannot then assume that all disorders that involve low serotonin levels in patients in general are indicative of underlying depression. There seems to be very real differences between individuals diagnosed as clinically depressed, individuals with alcoholism, and individuals with anxiety disorders, such as obsessive-compulsive disorder.

It has also been argued that depression and alcoholism are genetically linked, since families with high rates of alcoholism in men also show high rates of depression in women. In 1974, Cadoret and Winoker found significantly higher rates of depression in the families of alcoholics, as well as significantly higher rates of alcoholism in the families with high rates of depression. However, recent studies, such as the Merikangas, Weissman and Pauls' study in 1985, have shown no connection between depression and alcoholism in families. Therefore, we should exercise caution in accepting the idea that vulnerabilities to depression and alcoholism are genetically linked. More importantly, even if they prove to be genetically linked in the future, we cannot then assume that they are two different manifestations of the same disorder. What would prevent us from grouping eating disorders, which are primarily diagnosed in females and have also been shown to run in families, under depression? To equate depression rates between men and women, we would be forced to look for other mental disorders that are predominantly diagnosed in men to "catch up" to the increased rate of depression in women.

Furthermore, depression is just as likely to be a consequence rather than a cause of alcoholism. Triffleman et al. (1995) found that in men alcohol disorders were more likely to precede depression than to follow depression. However, in women, this pattern was reversed. Also, while alcoholic men were twice as likely to develop depression than non-alcoholic men, alcoholic women were three times more likely to develop depression than non-alcoholic women. Perhaps then, it would be more accurate to say that alcoholism masks depression in some men and women, although women are more likely to have a primary diagnosis of depression, while men are more likely to have a primary diagnosis of alcoholism. Even among alcoholic individuals with a primary diagnosis of alcoholism, women are significantly more likely to develop depression in reaction to their alcoholism and its interperson-

al and professional consequences.

In short, there does not seem to be any real evidence to support the idea that there is something particular to alcoholism that equates it to depression. These two disorders have distinct symptoms and can be viewed as different responses to similar difficult circumstances. Still, it is worth considering the possibility that some alcoholic men suffer from an underlying depression that triggered their alcoholism, and that the rates of depression in men and women are closer than they first appear. This still does not account for such a large, universal discrepancy in depression rates, however. The idea that this discrepancy is an illusion is not convincing and we must consider other explanations for this difference.

BIOLOGICAL EXPLANATIONS

Since the nineteenth century, doctors have been attributing mental disorders in women to their reproductive systems. In the middle of the 1800's, it was even thought that menstruation detracted blood from the brain, causing stupidity and temporary insanity. Women were told to stay in bed during their menstrual cycles, avoiding all physical activities possible (Nolen-Hoeksema, 1990). Even though medical research has advanced significantly since then, the role that women's reproductive systems play in their mental health is still unclear. While some studies support the idea that women's hormones are responsible for their higher vulnerability to depression, other studies have found no evidence for such a conclusion. The idea that biology plays an important role in explaining the different rates of depression between men and women seems to be a logical one, since different gender rates of depression have been proven cross-culturally. The fact that this gender difference does not emerge until puberty, when girls experience significant hormonal changes, also supports the idea that there is something particular to a woman's biology that makes her extremely susceptible to depression. While some researchers argue that a woman's hormones are responsible for her increased vulnerability to depression, others point to genetic factors.

Most of the research that has been done on the effects of hormones on women's moods has been done on estrogen and progesterone. Women experience periods of hormonal changes in these two hormone levels during the pre-menstrual period, pregnancy, the postpartum period, and during menopause. Evidence for an

increased risk of vulnerability to depression during these periods is weak at best. For example, Brook-Gunn and Warren (1987) assessed the moods of 103 girls, ages of 10-14, and how these moods correlated with girls' various hormonal levels, the extent of their secondary sex characteristics development, and the type of life events each girl had experienced. They found that changes in hormone levels accounted for approximately 1% of the changes in girls' mood levels. Life events, however, were strongly correlated with changes in moods. Specifically, girls who had experienced a negative life event were significantly more likely than girls who had not experienced a negative life event to experience depressed moods.

In another study by Eccles and colleagues (1988), the relationship between hormonal levels and moods varied. Some children experienced high levels of hormones, such as progesterone, androgen, estradiol, luteinizing hormones, and follicle-stimulating hormones with positive moods, while others experienced high levels of the same hormone with negative moods. This study suggests that increased levels of certain hormones may create increased sensitivity to moods in general, rather than increased vulnerability specifically to depression. Similarly, Alagna and Hamilton (1984) demonstrated that women who experience pre-menstrual syndrome show depressive symptoms throughout the month, although their moods are exacerbated before menstruation. It seems that changes in levels of estrogen and progesterone affect only those women with underlying tendencies to experience depression. Thus, the biological effects of hormones on women's moods and levels of depression cannot explain the large gender discrepancy in rates of depression between men and women. While female hormones may exacerbate depression in women who are already prone to depression, we cannot conclude that female hormones directly cause depression in women. Female hormones may, however, contribute to the higher rates of depression in women indirectly.

It has been demonstrated that close to half of all severely depressed people have high levels of cortisol, which the body releases in reaction to stress (Leibenluft, 2001). Vamvakopoulos et al. (2000) have found some evidence that estrogen increases cortisol secretion in women, as well as lengthening the amount of time it takes for high levels of cortisol levels to return to normal. This has important health implications in women, especially when we consider that women are more likely than men to experience stressful events in the form of low economic status and sin-

gle parenthood. Marcott (1999) also found that upper-middle class adolescent girls were more likely than upper-middle class adolescent boys to report experiencing stressful events in their lives. Therefore, since women are said to experience a greater number of stressful events in their lives and also react to those stressful events with longer periods of cortisol secretion, they will then be more susceptible to the effects of cortisol in their blood. However, the relationship between cortisol and depression is unclear, since depression may cause cortisol levels to rise in the first place instead of the other way around. What is more, half of all depressed patients show normal levels of cortisol secretion and maintenance. Overall, hormonal explanations for the gender differences in depression are not convincing.

Other proponents of a biological theory for the different rates of depression between men and women argue that depression is passed down to women genetically. In a study done by Kendler et al. (2000), 2060 female twins with and without a family history of depression were assessed. When women without family histories of depression had undergone recent traumas, such as divorce or a death of a loved one, their likelihood of developing depression was increased by 6%. Those women with a history of family depression, however, were 14% more likely to develop depression. According to the study, women (and possibly, men) inherit the propensity to become depressed in the wake of a crisis. However, while there does seem to be a genetic link in depression, there is no evidence that this genetic link is passed down through the X chromosomes, which would make women more susceptible to depression than men. Merikangas et al. (1985) found that the relatives of male depressives and female depressives were equally likely to be diagnosed with depression. Therefore, there is no strong evidence that gender differences in depression can be explained through genetics, and we must consider other explanations.

ENVIRONMENTAL EXPLANATIONS

Environmental explanations for the higher rates of depression in women than in men are based on the assumption that women experience more stressors in their lives that lead to depression. Proponents of biological theories of sex differences in depression argue that the widespread nature of such differences point to a biological explanation, since women are biologically

the same in Hawaii as they are in Hong Kong. Proponents of environmental explanations, however, point out that women are oppressed across the world as well. If women in some societies were to share equal roles and status to the men in their societies and still displayed twice the rate of depression as men, we would be able to say confidently that biology plays a major role in accounting for this sex difference. However, almost all societies have designated different, unequal roles for women than for men. The exceptional societies where women are considered to be completely equal or superior to men have not been studied in terms of depression rates, although such research might give us important further clues into this debate. What we do know, however, is that the environment plays a significant role in determining rates of depression in both men and women. This can be seen in the fact that depression rates vary from culture to culture, as well as between the subgroups within cultures. Research shows that rates of depression are higher in populations with low social status and income levels (Blazer et al., 1994). However, the relationship of social class, gender, and depression is not straightforward.

Brown and Harris (1978) identified four precipitating factors for depression in American women. These factors include the loss of a mother before the age of eleven years old, having three or more children under fourteen living at home, lack of employment, and lack of a close confidant or source of support. Interestingly, Brown & Harris found no class difference in depression rates among women without children. This is in spite of the finding that women in the working-class (68%) were more likely to have experienced a negative life event than women in the middle-class (38%). This suggests that particular stressors are more likely to increase the likelihood of depression in women, regardless of social class and environmental triggers. However, this study has not been replicated to determine whether men share the same precipitating factors. What this study does show us is that the environment plays a key role in determining the likelihood of developing depression in women.

Radloff (1975) found that married, divorced, and separated women were more likely to be depressed than men, while widowed men were more likely to be depressed than women. Radloff also found that unmarried men and women shared similar rates of depression. This may be due to the kind of woman who chooses to remain unmarried, although it is an interesting exception to the general trend of gender differences in

depression. Radloff's findings suggest that men and women react differently to romantic relationships, with more women experiencing depressive symptoms due to negative relationships. These findings were replicated in a survey of 900 couples, with women more likely to report depressive symptoms due to marital troubles than men (Gale Group, 2000). The study also evaluated the levels of hostility exhibited from each partner in the areas of cynicism, aggressive reaction to problems, and negative emotions about others. Interestingly, women's levels of depression were closely related to their husbands' hostility ratings, while men's depression levels were not linked to their wives' hostility ratings. It seems that one explanation for the sex differences in depression can be attributed to women's greater sensitivity to negative relationships.

Furthermore, women are also more likely to be victims of physical and sexual abuse than men. In a national population-based sample, 16% of men and 27% of women reported having experienced childhood sexual abuse (Finkelhor et al., 1990). It may be that men are not as willing to admit to childhood sexual abuse than are women. However, it cannot be disputed that women are much more likely than men to be the victims of other forms of adult sexual abuse, such as rape. Studies have shown that sexual abuse, in particular, leads to the development of depression in both men and women, sometimes years later (Roesler & McKenzie, 1994). Other factors in the environment that may contribute to women's higher rates of depression include: conflicting roles in the home and workplace, sexual discrimination in the home and workplace, and the burden of "the double shift," with women continuing with their roles as homemakers despite working full-time outside of the home. Overall, it has been found that women are more likely to experience stressors in their environments in terms of abuse and dual role expectations. Along with the finding that women are more psychologically vulnerable to the effects of negative relationships, it is clear that the environment plays a major role in explaining the sex differences in rates of depression between men and women. Since our different environments also shape our thinking, one question that we can now ask is how a woman's environment shapes her psychology in ways that increase her risks of developing depression.

PSYCHOLOGICAL EXPLANATIONS

In 1975, Seligman and his colleagues devel-

oped the theory of learned helplessness. According to this theory, repeated exposure to negative situations where one has little control produces feelings of helplessness and symptoms of depression. Since women are more likely to experience situations where they are made to feel helpless, such as through sexual abuse and single parent situations, women would then be more likely to develop a sense that they are not in control of their environments, which may lead to the development of depression. There is some evidence in support of this theory that offers us a non-biological explanation for why sex differences in depression emerge in adolescence. Marcott (1999) found that male adolescents' confidence in their problem-solving skills increased with age, while female adolescents' confidence in their problem-solving skills decreased with age. Girls also reported experiencing a greater number of stressful events and a lower sense of feeling in control than did boys. According to learned helplessness theory, these feelings of powerlessness should result in greater rates of depression in adolescent girls than in adolescent boys, which is indeed the case. Learned helplessness theory does not explain, however, why some women are more likely than others to develop depression. Also, under learned helplessness theory, men who experience trauma would be just as likely to develop depression than women in similar situations, which does not seem to be the case.

Some researchers argue that different cognitive coping styles between the sexes offers us a better explanation for the different rates of depression in men and women. According to Nolen-Hoeksema (1990), men are more likely to react to emotional distress by trying not to think about it, while women are more likely to react to emotional distress by ruminating over their problems. In a two-part phone interview of 1,132 randomly selected California residents taken one year apart from each other, Nolen-Hoeksema (2000) found that respondents who scored high on rumination levels at time 1 were more likely to meet criteria for major depressive disorder both at time 1 and time 2. More importantly, time 1 rumination scores significantly predicted level of time 2 depressive symptoms both before and after time 1 depressive symptoms were controlled for. Therefore, rumination was indicative of future development of depression.

The reason why women are more likely to engage in rumination can be attributed to the gender socialization process. Parents tend to engage in elaborative styles of speaking to their daughters and pragmatic styles of speaking to their sons when talking

about the past (Fivush, 1993). Elaborative styles of speaking are rich in detail, connecting events to other events and the feelings that are involved with those events. Pragmatic styles of speaking, however, are non-detail-laden and not linked to other events. Davis (1999) found that non-depressed women were faster at accessing emotionally charged autobiographical memories than non-depressed men, typically recalling more memories in greater detail. According to this study, women who are faced with negative events should be faster than men at retrieving memories of other negative events, experiencing these memories and their accompanying negative feelings in greater detail and to greater degrees. Women would then be more likely to develop and to maintain feelings of depression. Presumably, women would also maintain feelings of happiness for longer periods of time than men, although this has not been demonstrated.

Overall, the relationship between rumination and depression is still unclear, since depression may precede rumination. Also, Gold and Wegner (1995) have shown that ruminative thought often follows a traumatic experience and the attempt to suppress the experience from memory. Since trauma is highly indicative of the future development of depression, high correlations between ruminative thought and the development of depression may be a consequence of the relationship between trauma and depression, rather than a relationship between rumination and depression. It could, however, also be the case that ruminative thought is a mediating factor between experiencing trauma and developing depression. Further research needs to be done in order to understand the role of rumination in the development and maintenance of depression. What we can conclude, however, is that women, for whatever reasons, are more likely to engage in ruminative thoughts, which are highly correlated with and have been shown to precede and maintain depression.

CONCLUSION: AN INTEGRATED APPROACH

In this essay, I divided the possible explanations for the sex difference in the rates of depression between men and women in terms of biology, environment, and psychology. I want to stress, however, that these categories are not independent from each other. For example, the higher rates of childhood sexual abuse in females (an environmental explanation) may affect

brain development in ways that increase the risks of depression in the predominantly female victims of sexual abuse (a biological explanation). A brain in the early stages of development is highly susceptible to environmental insults, which can negatively affect the size of the structures of the brain, including the prefrontal cortex. Brain imaging has revealed that people who are depressed often have overactive right cortices, which govern the physiological loop that produces positive emotions (Robbins, 2000). Since young girls are more likely to undergo sexual and physical abuse than young boys, Robbins (2000) and other researchers speculate that a greater number of girls may experience slight brain alterations due to trauma, which may then increase their risks of developing depression in the future. Further studies will need to be conducted in order to understand the relationship between childhood abuse, brain development, and mental illness. However, this example illustrates the fact that biology, the environment, and a person's psychology interact with each other in complicated ways. Because of this, there is no simple answer as to why women are roughly twice as likely to experience depression than men. Women and men differ from each other in terms of physiology, exposure to stress, and types of cognitive styles. They also differ in how these factors interact with each other. Let us consider, for a moment, a fictional case scenario:

Mary and Craig are married. Depression runs in Mary's family. Therefore, she has inherited a greater vulnerability to experience depression in reaction to negative life events, including a stressful marriage. Mary and Craig are spending a lot of time arguing with each other, since Mary feels overburdened with the duties of her job and the amount of household chores that she performs. Unlike Mary, Craig does not dwell on his arguments with his wife. Instead he spends more time at work or goes out and drinks with his friends, temporarily forgetting about his problems at home. Meanwhile, Mary sits at home thinking about how horrible she feels and what this means for her future. It is no wonder that Mary is twice as likely to develop depression than her husband!

Of course, this is a very simplistic scenario and there are many additional factors that will determine whether or not Mary or Craig will develop depression. It does, however, provide us with a more vivid picture of how a married couple may react differently to each other and their situations, and why this may lead to differences in depression levels between a man and a woman.

Finally, even though it has been demonstrated that depression rates in women are consistently about twice as high as depression rates in men cross-culturally, these rates are in no way fixed. They may converge over time, or grow farther apart. The differences in the amount and severity of stressors between men and women may become less extreme, or coping styles may become less gender-specific. If such were the case, the environmental and psychological theories which have been proposed and reviewed in this essay would predict closer rates of depression in men and women. Further research in neuroscience should also provide us with a clearer understanding of the physiology of depression and by what processes negative life events and rumination contribute to this physiology. This research may in turn lead to more effective treatments for depression.

In summary, it is most likely a combination of factors that account for the extent and the cross-cultural nature of the discrepancies in depression rates between genders. Females emerge with higher rates of depression than males during adolescence, as they experience different hormonal changes and greater feelings of helplessness, perhaps due to these changes. The greatest predictor of adolescent female depression is the experiencing of a negative event, which underlies the significant contribution of the environment to the development of depression. Women tend to experience more traumas in their lives than men. They also are more likely to ruminate over their traumas, which may increase their likelihood of developing depression. Conversely, it may be that men protect themselves from depression by engaging in avoidant behaviors. This does not imply that mental illnesses stemming from avoidant behaviors are other forms of depression. If alcoholism is the male version of depression, perhaps depression is the female version of alcoholism in a society where women are not as encouraged to drink alcohol. Simply stated, men and women experience different degrees and types of negative events in their lifetimes, and are taught to react to these events in gender-specific ways. This leads to greater susceptibilities to different mental illnesses, such as depression in women.

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